

**TACKLING**

**A BIG PROJECT**

**PAINTING THE CAPE FEAR MEMORIAL BRIDGE**

# PROJECT PARTNERS

DESIGN ENGINEER FIRM



COATING CONTRACTOR



COATING MANUFACTURER

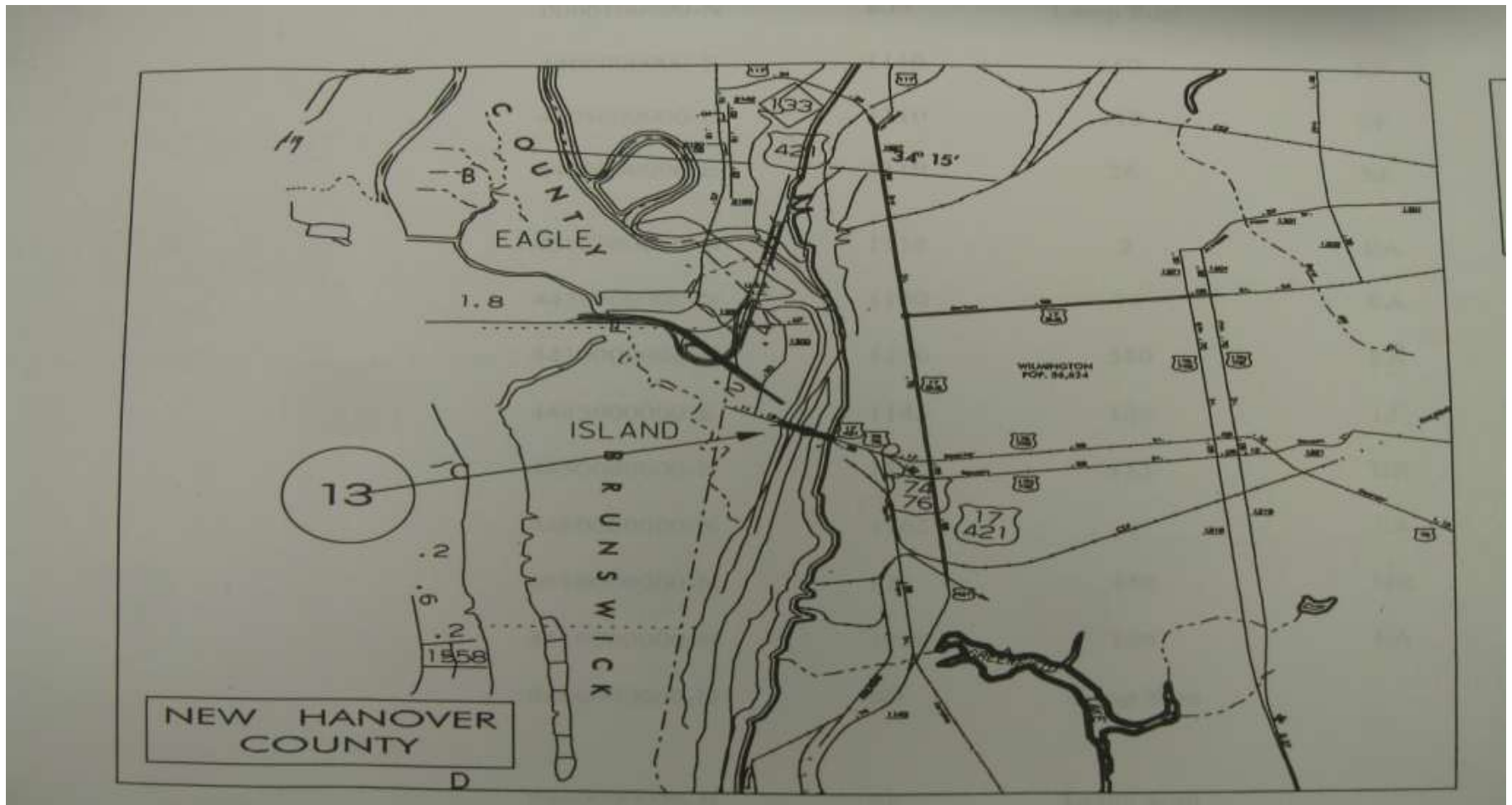


QA COATINGS  
INSPECTION FIRM



# STRUCTURE LOCATION

LOCATION: US- 17,74,76 ACROSS THE CAPE FEAR RIVER



# STRUCTURE ORIENTATION

**STRUCTURE IS A VITAL LINK FOR DOWNTOWN  
WILMINGTON THAT CARRIES US 17/74/76 AND SR 1300  
ACROSS THE CAPE FEAR RIVER .**



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# STRUCTURE DESCRIPTION

- Truss lift span structure and open steel grid deck on steel girders.
- Length of moveable lift span- 408 Feet
- Structure length- 3,033 Feet
- Deck width, out to out- 61.5 Feet
- Vertical clearance over roadway- 16.0 Feet
- Navigation vertical clearance- 135 Feet
- Channel depth – 27 Feet
- Average Daily Traffic count of 49,000 in 2007

# PREVIOUS HISTORY

- 1969- Structure was erected
- 1985 -Structure was spot primed and top coated
- 2004-Electrical Maintenance was performed
- 2008-Maintenance coatings were applied on lift span portion.
- 2010- Bridge preservation project was initiated.

# PLANNING CONSIDERATIONS

- Summary of steel areas to be painted:
  - Lift Span:190,098 sq. ft. (Total)
    - Exterior Chord Area : 21,246 sq. ft.
    - Interior Chord Area-:19,952 sq. ft.
  - Towers- 129,726 (Total)
    - Exterior Chord Area: 35,553 sq. ft.
    - Interior Chord Area: 32,877 sq.ft.
  - Counter Weights (2): 7,339 sq. ft
  - Control House: 7,836 sq.ft
  - Machinery Houses (2): 15, 726 sq. ft.
- **Total Area: 350,795 sq. ft**

# PLANNING CONSIDERATIONS

- April 2009- Materials and Tests Unit held multiple discussions with Carboline & Sherwin Williams paint representatives to discuss options for alternative paint systems for this project.
- May 2009 State Bridge Management Unit (SBMU) sent out a constructability survey to the major painting contractors who had performed work on similar structures in order to understand how they would tackle such a project.



# PLANNING CONSIDERATIONS

- Sept 2009- SBMU conducted a constructability meeting with potential painting contractors and other key personnel.
- January 2010- Pre-Bid Meeting established
- March 2010- Pre-Construction Conference

# INITIAL CONDITION STRUCTURE EXTERIOR



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# LIFT TOWERS



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# TOWER LEGS





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# UNDER STRUCTURE





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# MACHINE ROOM SUPPORT STRUCTURE



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# BEARING & JOURNAL ASSEMBLIES





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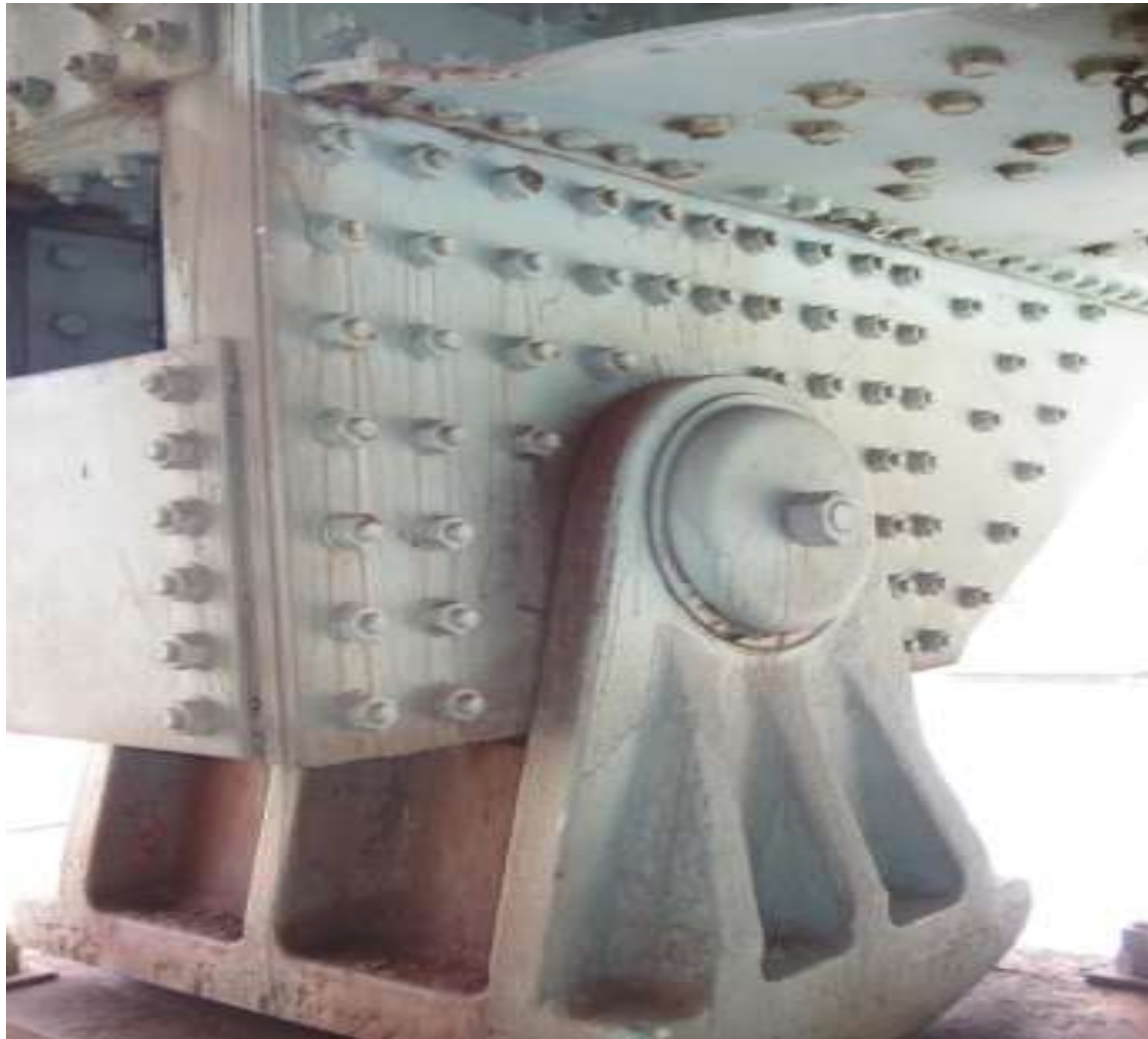




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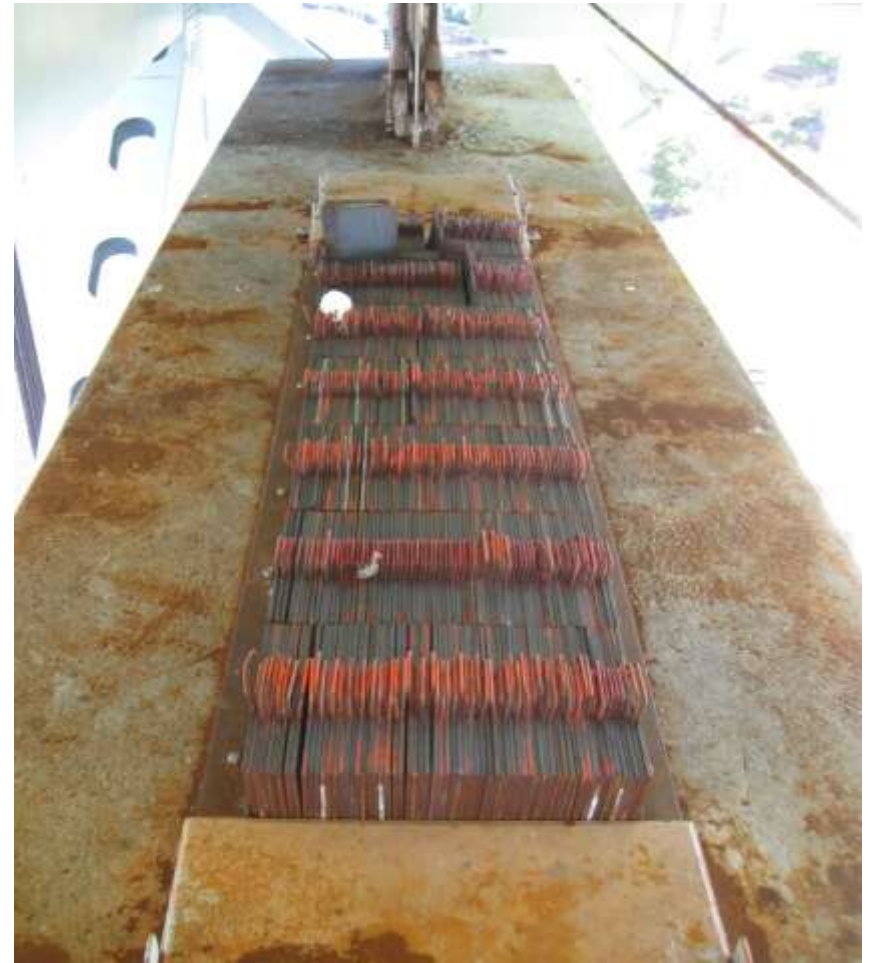


# PROJECT CONSIDERATIONS

- Minimize bridge closures and other delays to the traveling public.
- Maintaining span weight balance.
- Maintain navigable waterway passage and eliminate delays in containment removal.
- Scaffolding erection on lift towers.
- Project rendering
- Coating selection
- Chloride removal
- Paint system for hollow chord members.
- Storage Area
- Quality assurance inspection



# MAINTAINING SPAN BALANCE





# NAVIGABLE WATERWAY PASSAGE

157' "Pride of  
Baltimore"  
sailing into  
downtown  
Wilmington.



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# SCAFFOLDING ERECTION



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# CONTAINMENT SEQUENCING





# PROJECT RENDERING

WILMINGTON TOWN COUNCIL & WILMINGTON  
METROPOLITAN PLANNING ORGANIZATION APPROVAL



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# COATING SPECIFICATION HIGHLIGHTS

- Containment- SSPC Class 2A.
- Power wash all surfaces (contain/test all wash water)
- Surface chloride levels 7 ug/cm<sup>2</sup> or lower.
- Caulk all steel to steel contact areas under truss portion.
- Surface Cleanliness of SSPC-SP-10 except on surfaces with siding and critical machinery areas.
- Paint System
  - Organic Zinc Primer
  - Acrylic Intermediate (Brown)
  - Acrylic Stripe coat (White)
  - Acrylic Top Coat (Light Green #34670)
  - Accent Stripe (Dark Green #34325)
- Hollow Chord Members
  - Organic Zinc Primer
  - Two coats of Epoxy Aluminum Mastic
- Surfaces with Siding
  - Two coats of Acrylic

# STORAGE AREA





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# JUNE 2010 PROGRESSION

## PROGRESS SUMMARY

Sunbelt Inc.  
erected  
scaffolding.

West tower  
containment  
curtain rigging.

West tower  
pressure  
washings.

T.I.C Inc.  
replaced guide  
rollers in east  
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## PROGRESS SUMMARY

Blasting & priming operations continue throughout west tower structure.

Touch up, repair and housekeeping in west tower.



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# AUGUST 2010 PROGRESSION

## PROGRESS SUMMARY

Prime coat  
completed on  
west tower.

Rigged  
containment  
curtains on  
east tower.

Pressure  
wash east  
tower.



# AUGUST 2010 PROGRESSION

## PROGRESS SUMMARY

Prime coat completed on west tower.

Rigged containment curtains on east tower.

Pressure wash east tower.





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# SEPTEMBER 2010 PROGRESSION

## PROGRESS SUMMARY

Blast &  
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Began  
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of Epoxy  
aluminum  
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East tower blast,  
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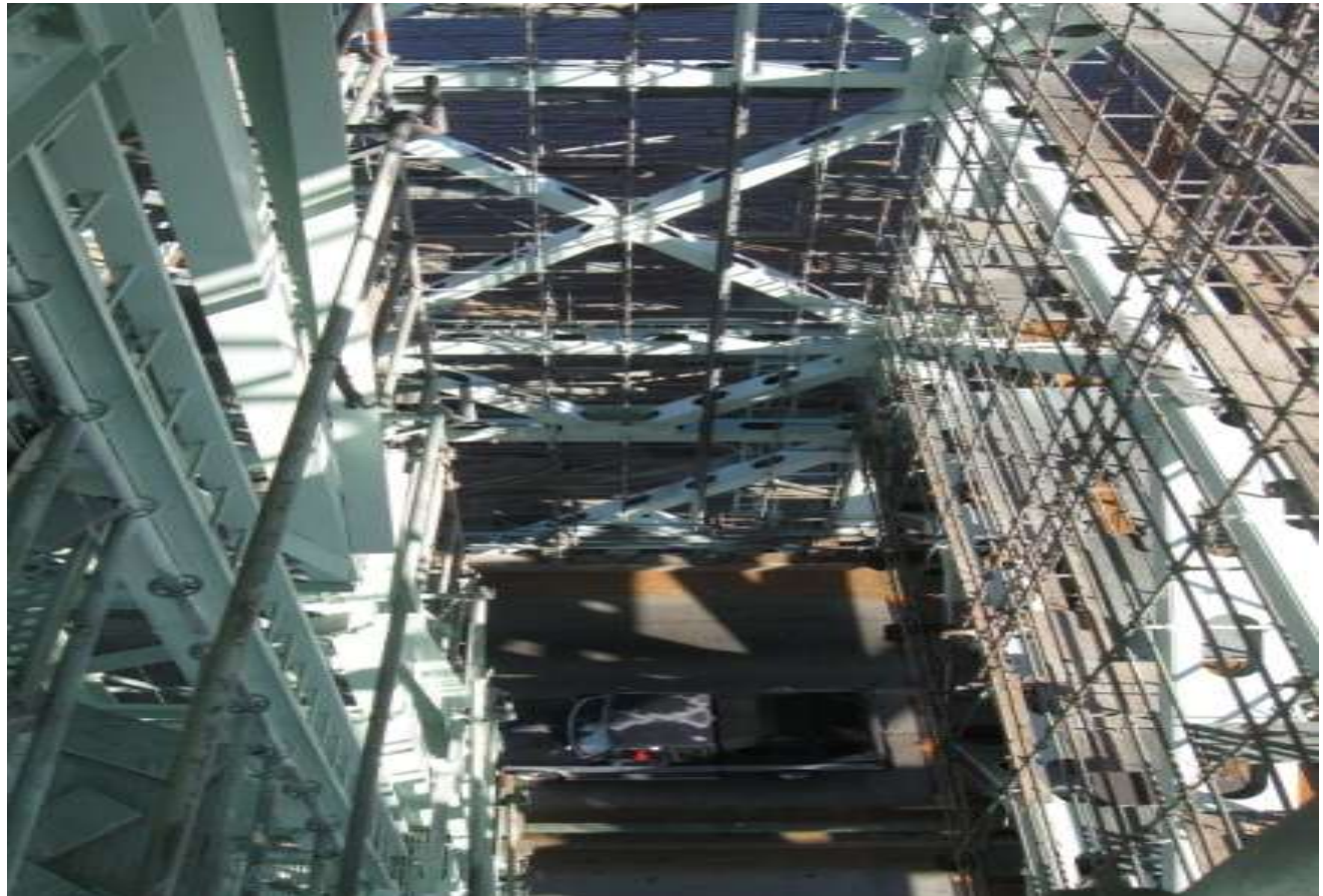
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Light poles replaced on east and west bridge lanes.

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Structure below  
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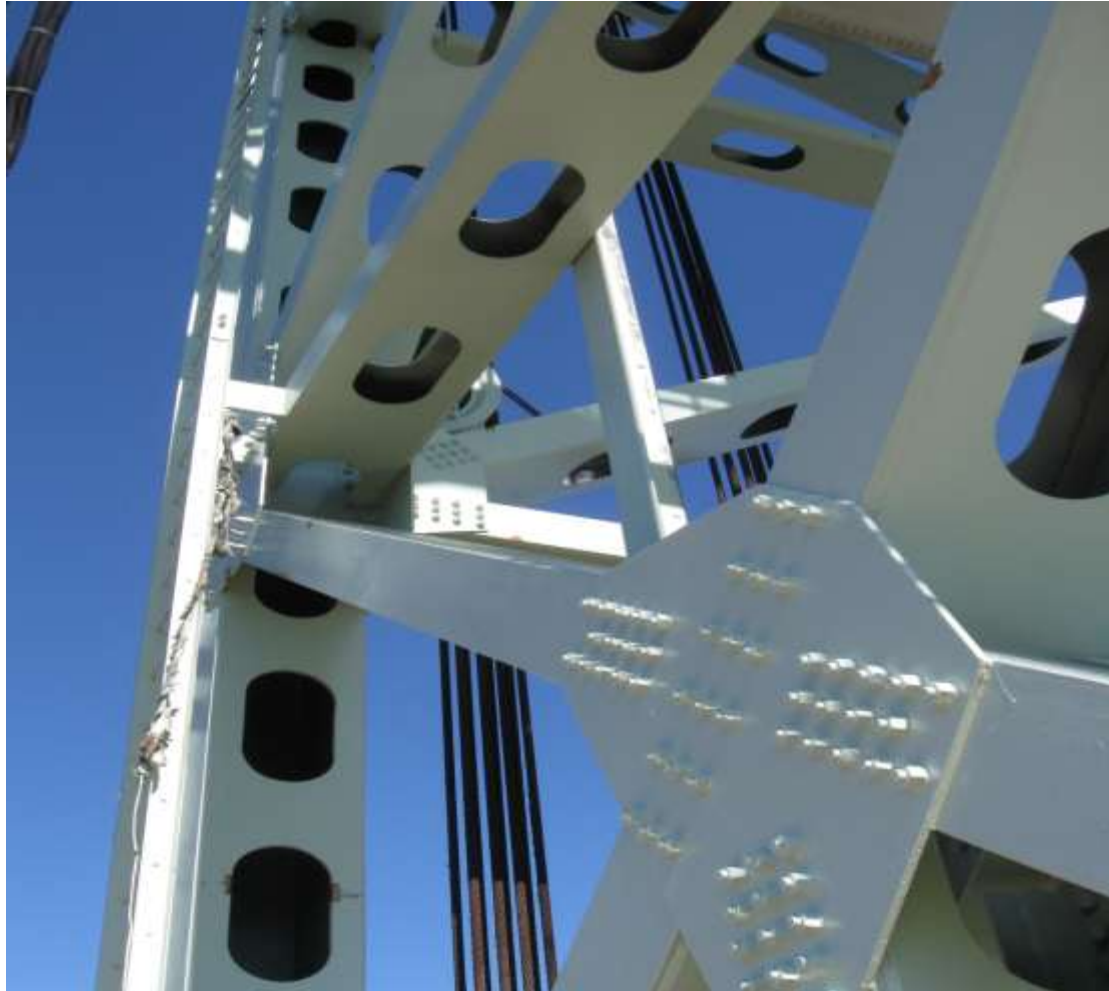


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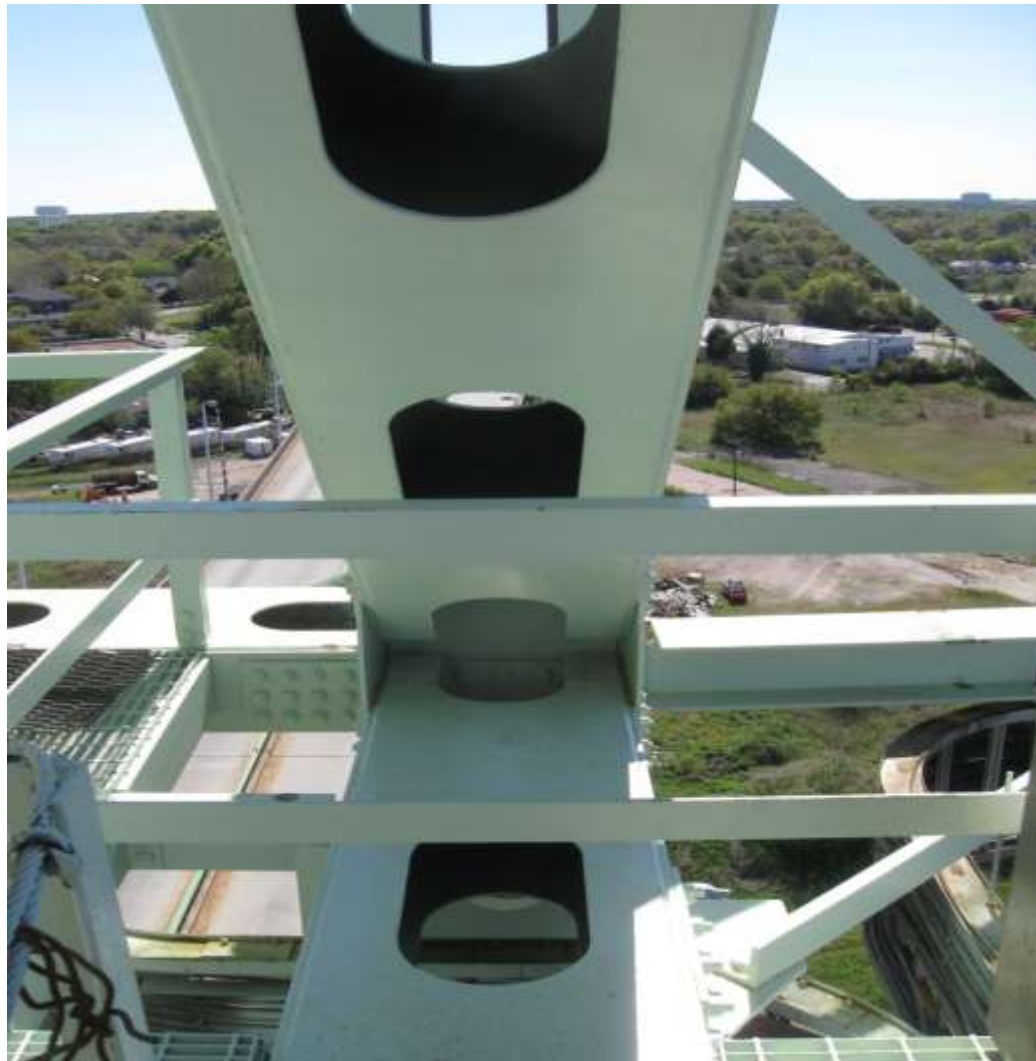
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# QUESTIONS?

